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If You Can't Beat 'Em Join 'Em

Practical Tips For Running a Successful Bug Bounty Program

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(formerly an ASE)

Before that, Whitehat

Did some traveling

Music

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AppSec Engineer (ASE) @Bugcrowd

Team Lead

Bugbounty Hunter

Gamer

Bug Bounty Programs

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A (Brief) History of Bug Bounty Programs

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Why?

Do you really want to let people attack you?

Source: http://hyperboleandahalf.blogspot.com/2010_06_01_archive.html

Yes! (They're doing it anyways…)

Source: http://hyperboleandahalf.blogspot.com/2010_06_01_archive.html

Who are these people?

All over the place!

All ages

All levels of experience

All over the world

Users and non-users

Passionate about security

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Value

Lots of eyes

Only pay for valid results

Shows a more advanced security posture

Better overall reputation!

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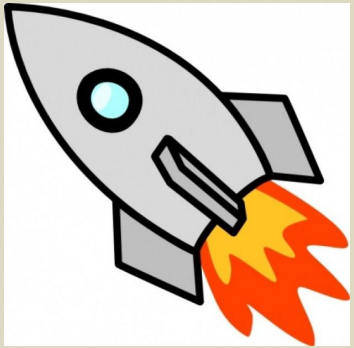
How?

How?

Pre-Launch

Scope
Focus
Exclusions
Environment
Access



Post-Launch

Managing Expectations
Communicating Effectively
Defining a Vulnerability Rating Taxonomy (VRT)

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“Touch the code, pay the bug.”

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You ~~vs.~~ and Them

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Pre-Launch

Scope, scope, scope

Step 0...

Basic resources/requirements to run a program…

Scope defines the researcher's universe

Leave nothing open to interpretation
Understand your attack surface
The path of least resistance

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Focus

You might care about specific:

Targets
Vuln types
Functionalities (e.g. payment processing)

How?

Incentives
Create a focused program

Source: https://xkcd.com/1361/

Exclusions

You might not care about:

(Low-impact) “Low-hanging fruit”
Intended functionality
Known issues
Accepted Risks
Issues resulting from pivoting

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Environment

Prod vs. Staging?

Make sure it can stand up to testing!

- Scanners
- Contact forms
- Pentesting requests

Special bounty type? IoT?

Researcher environments?

What a shared environment looks like...

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Access

- Easier = better
- Provide researchers with the resources they'll need to be successful (e.g. credit cards, etc).
- No shared creds

Remember...

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Post-Launch

- Be prepared
  Triage Process
  Communication
  Vulnerability Rating Taxonomy
  Horror Stories
  Success Stories

$UNPREPARED_COMPANY

Recipe for disaster:

Does not have human resources
Bad/Unclear exclusions
Don’t provide known issues
Pays bad rewards

Triage Process

Reproduction Steps

Screenshots

Pocs

NOT Videos **(without a supported writeup)**

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Triage Process

Good report

1. Go to url: http://target.com
2. Click on “button” x
3. Check burp for request z
4. Send to repeater
5. Modify param p to payload: “><svg/onload=alert(1)
6. Send request
7. Browse http://target.com/me.php for xss payload

Bad report

1. Login
2. Make the following request:
   POST /suppliers/15 HTTP/1.1
   …
3. XSS

Triage Process

Check Domain/Bug type if in scope
Check for duplicates
Replication Steps
Have accounts with diff roles ready
Have multiple browsers ready

Keep burp open (you'll need it)
Keep the scope handy
Rename valid bug titles

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Communication is Key

Researchers like:

Concise, unambiguous responses
ESL
Quick responses
Predictable time to reward

Stay on top of these issues!

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Define a Vulnerability Rating Taxonomy

For you:

Speed up triage process
Track your organization’s posture
Arrive at reward amount more quickly

For them (if published):

Focus on high-value bugs
Avoid reporting won't fix issues
Feel a sense of trust (goes with brief)

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Discuss the VRT at a Roundtable

Priority will change as your organization does.

Establish a discussion meeting to:

Review interesting bugs
Discuss additions to VRT
Propose changes to vulnerability classification/priorities
This is an ongoing process!

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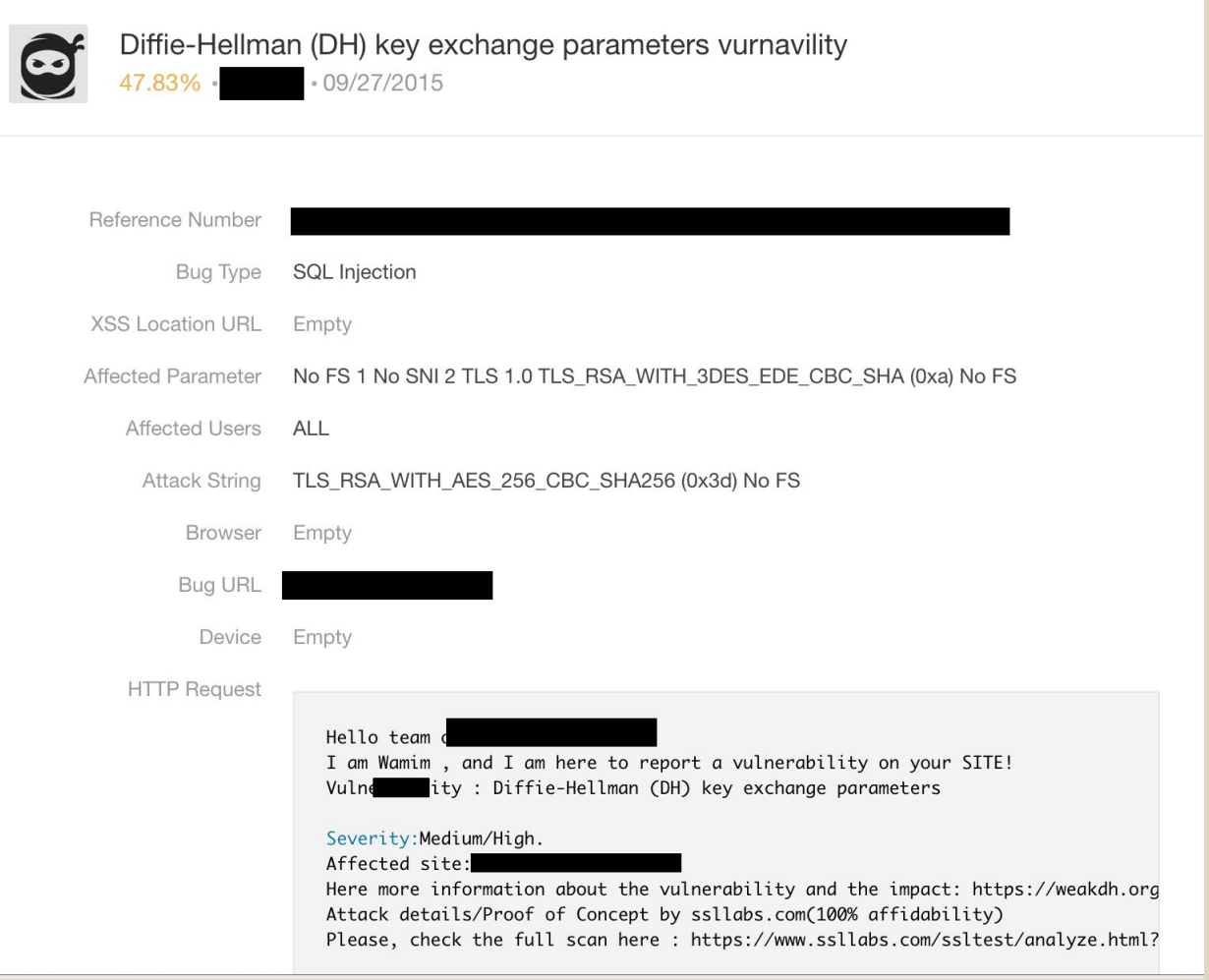
Horror Stories...



Diffie-Hellman (DH) key exchange parameters vurnavility

47.83% • [redacted] • 09/27/2015

Reference Number	[redacted]
Bug Type	SQL Injection
XSS Location URL	Empty
Affected Parameter	No FS 1 No SNI 2 TLS 1.0 TLS_RSA_WITH_3DES_EDE_CBC_SHA (0xa) No FS
Affected Users	ALL
Attack String	TLS_RSA_WITH_AES_256_CBC_SHA256 (0x3d) No FS
Browser	Empty
Bug URL	[redacted]
Device	Empty
HTTP Request	

```
Hello team [redacted]
I am Wamim , and I am here to report a vulnerability on your SITE!
Vuln[redacted]ity : Diffie-Hellman (DH) key exchange parameters

Severity:Medium/High.
Affected site:[redacted]
Here more information about the vulnerability and the impact: https://weakdh.org
Attack details/Proof of Concept by ssllabs.com(100% affidability)
Please, check the full scan here : https://www.ssllabs.com/ssltest/analyze.html?
```

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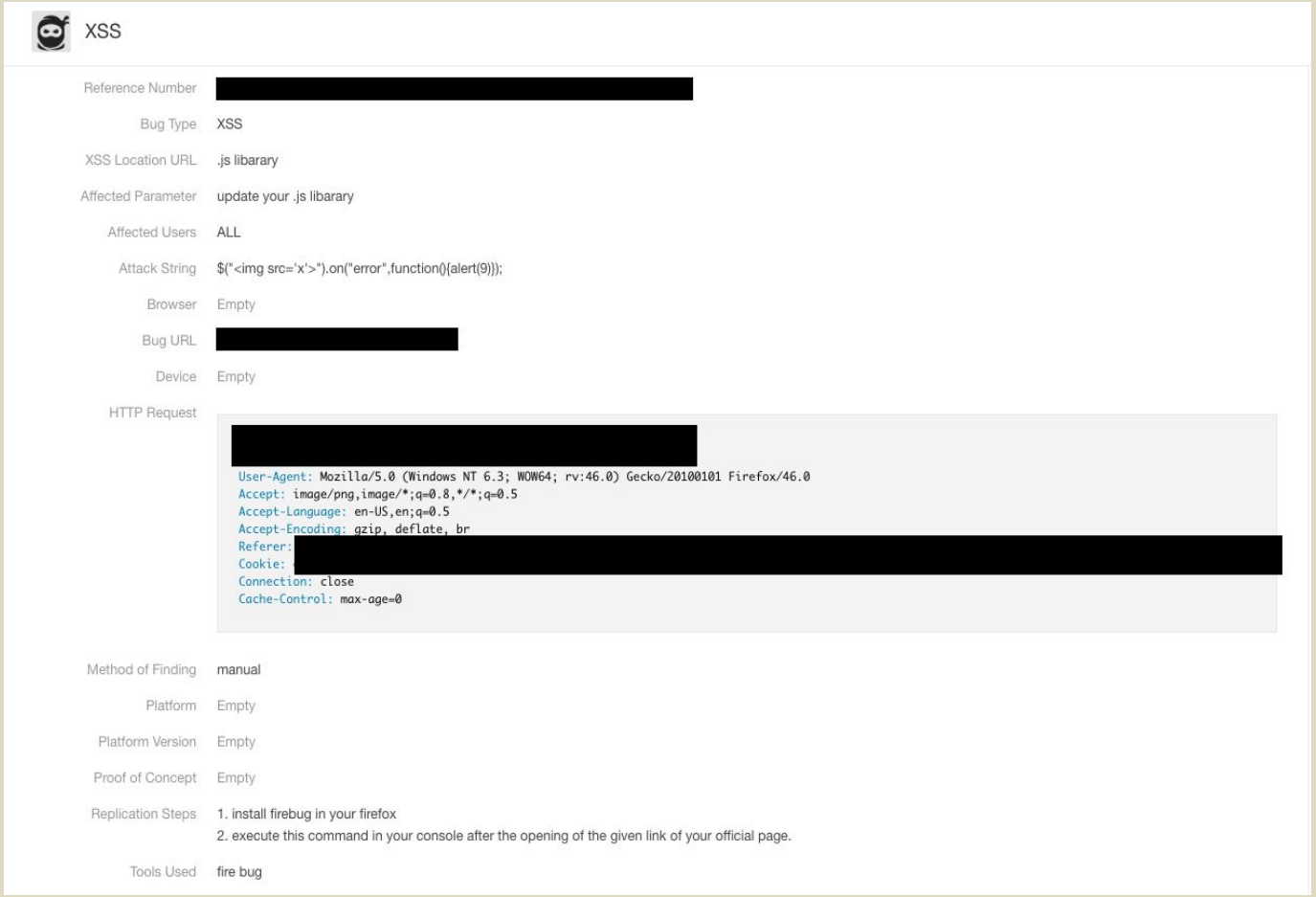
Horror Stories...



XSS

Reference Number	[redacted]
Bug Type	XSS
XSS Location URL	.js libarary
Affected Parameter	update your .js libarary
Affected Users	ALL
Attack String	$("<img src='x'>").on("error",function(){alert(9)});
Browser	Empty
Bug URL	[redacted]
Device	Empty
HTTP Request	[redacted] User-Agent: Mozilla/5.0 (Windows NT 6.3; WOW64; rv:46.0) Gecko/20100101 Firefox/46.0 Accept: image/png,image/*;q=0.8,*/*;q=0.5 Accept-Language: en-US,en;q=0.5 Accept-Encoding: gzip, deflate, br Referer: [redacted] Cookie: [redacted] Connection: close Cache-Control: max-age=0
Method of Finding	manual
Platform	Empty
Platform Version	Empty
Proof of Concept	Empty
Replication Steps	1. install firebug in your firefox 2. execute this command in your console after the opening of the given link of your official page.
Tools Used	fire bug

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Horror Stories...

[redacted] Content-Security-Policy header is missing [must patch soon]

hello support ,
CSP header is missisng , that the CSP response headers served are
missing , but the page without these headers can be cached by server. This makes it easier to mount a XSS attack or injuction attacks.

What is CSP?
Content Security Policy (CSP) is an added layer of security that helps to detect and mitigate certain types of attacks, including Cross Site Scripting (XSS) and data injection attacks. These attacks are used for everything from data theft to site defacement or distribution of malware.

CSP is designed to be fully backward compatible; browsers that don't support it still work with servers that implement it, and vice-versa. Browsers that don't support CSP simply ignore it, functioning as usual, defaulting to the standard same-origin policy for web content. If the site doesn't offer the CSP header, browsers likewise use the standard same-origin policy.

Is there any Risk ?? Yeah offcourse ,

The risk with CSP can have 2 main sources:

1] Policies misconfiguration,
2] Too permissive policies.

Horror Stories...

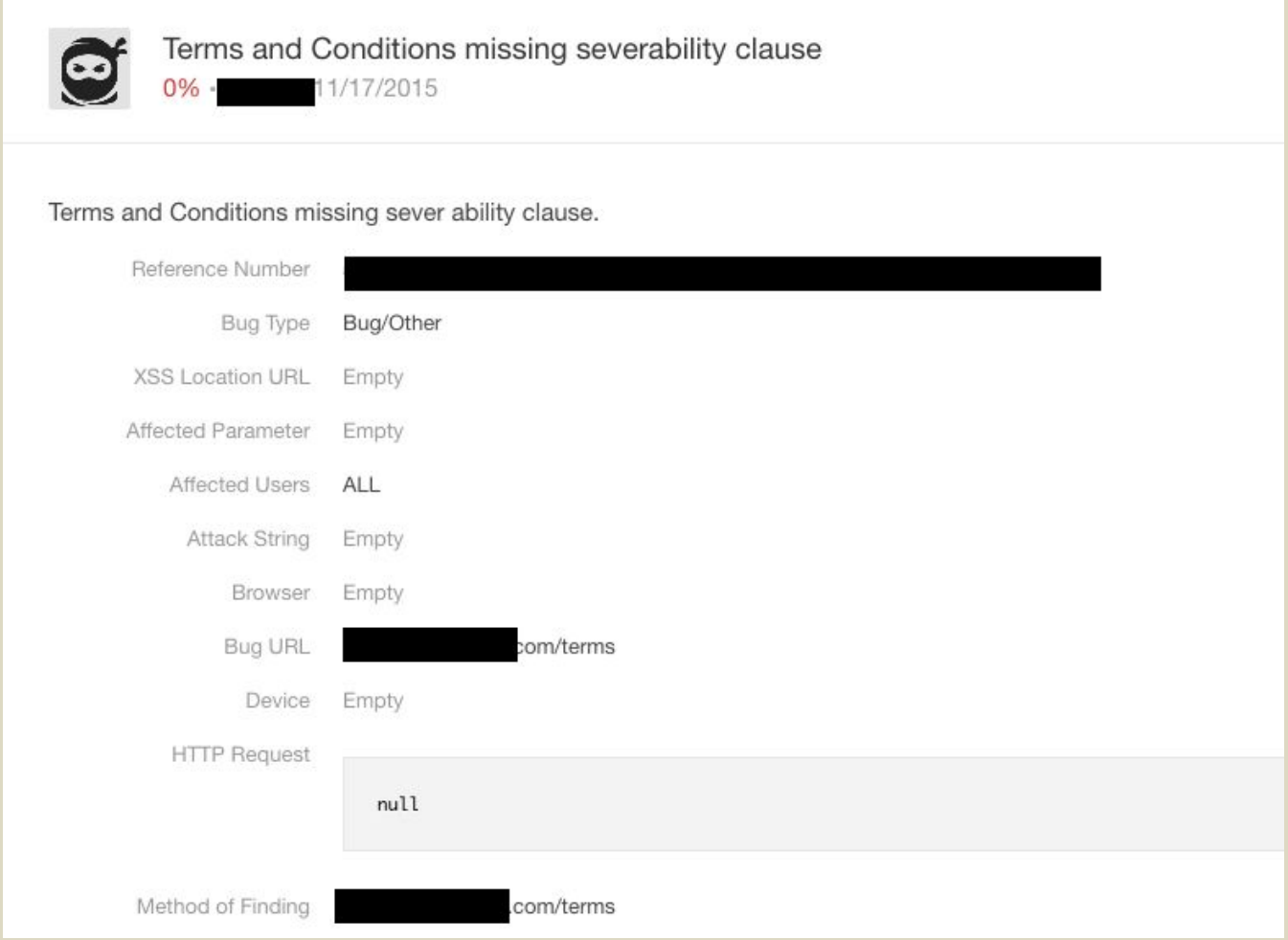
[redacted]

Cross-site request forgery, also known as a one-click attack or session riding and abbreviated as CSRF or XSRF, is a type of malicious exploit of a website whereby unauthorized commands are transmitted from a user that the website trusts

0% · [redacted] · 09/03/2015

Reference Number	[redacted]
Bug Type	CSRF
XSS Location URL	Empty
Affected Parameter	Empty
Affected Users	Empty
Attack String	Empty
Browser	Empty
Bug URL	www.google.sn/advanced_search | www.google.sn/intl/fr/chrome/business/devices/tco.html | www.google.sn/intl/fr/contact | www.google.sn/intl/fr/edu/products/productivity-tools/classroom/index.html | www.google.sn/intl/wo/contact | www.google.sn/intx/wo/work/search/products/gss.html | www.google.sn/movies | www.google.sn/trends/explore
Device	Empty

Horror Stories...



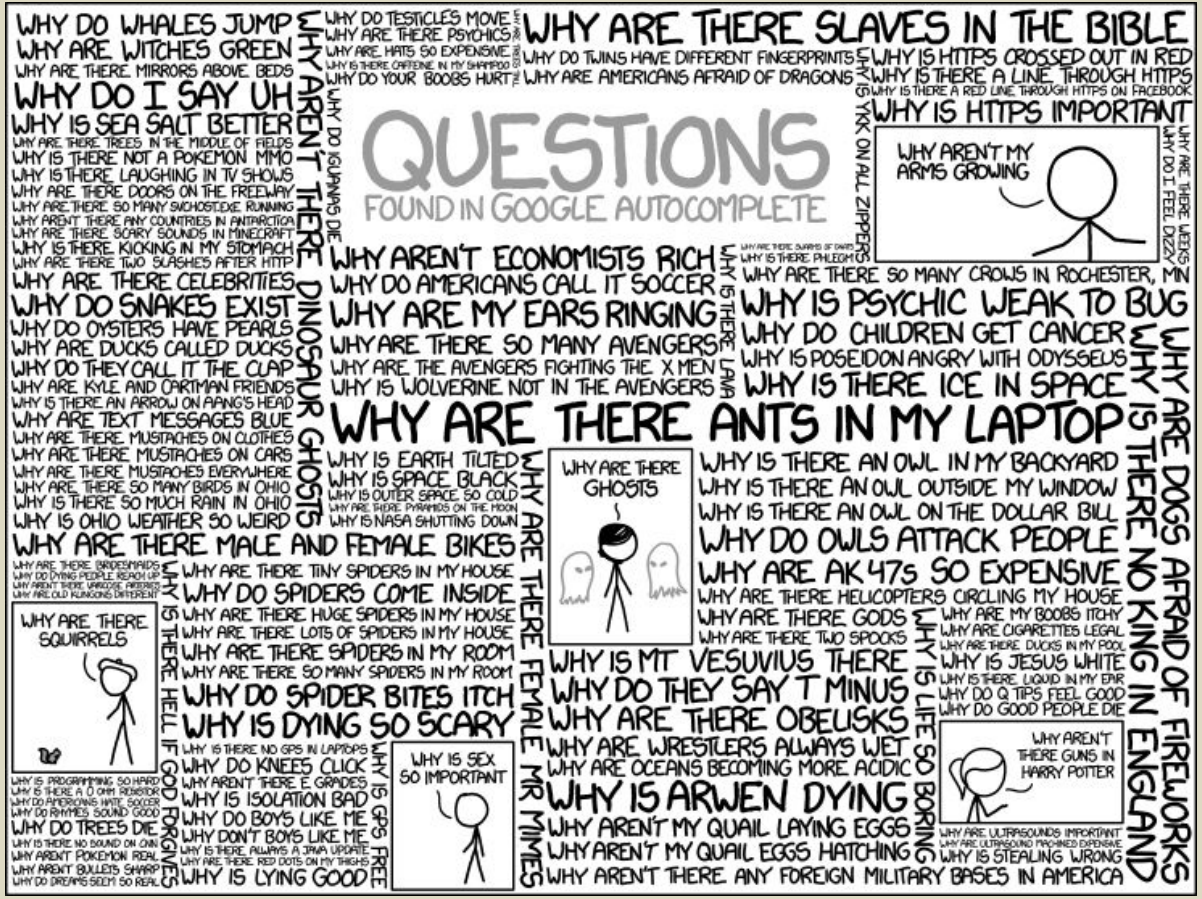
Success Stories

Instructure

	2013 (Pentest)	2014 (Bug Bounty)
Critical	0	0
High	1	25
Medium	1	8
Low	2	16

Source: https://www.canvaslms.com/security

tl;dr



Source: https://xkcd.com/1256/